

**What is claimed is:**

1. An optical pickup device comprises at least:  
a housing; and  
5 a beam splitter fixed to a beam splitter attachment position of the housing by an adhesive so that a splitter optical axis matches a design optical axis,  
wherein the housing has a temporary positioning projection for temporarily positioning the beam splitter  
10 in/around the beam splitter attachment position by abutting the beam splitter, and in the beam splitter attachment position, a plurality of through holes for inserting therein a plurality of projection sticks which are movable toward/apart from an attachment surface of the beam splitter while the beam splitter  
15 is abutting the temporarily positioning projection and the adhesive is uncured.
2. The device of claim 1, wherein the housing has, in its beam splitter attachment position, an adhesive housing recess for housing an adhesive and a reserve recess communicated with the adhesive housing  
20 recess for receiving an uncured adhesive overflowed from the housing recess by being pressed by the beam splitter.
3. The device of claim 2, wherein the adhesive housing recess is disposed almost in the center of the beam splitter attachment position of the housing, and the through holes are disposed around the adhesive  
25 housing recess.

4. The device of claim 1, further comprises a diffraction mirror attached to the housing for reflecting light from the beam splitter.
5. The device of claim 3, wherein the through holes comprise three through holes provided in positions of three vertexes of an almost equilateral triangle around the adhesive housing recess in the beam splitter attachment position of the housing.
6. The device of claim 3, wherein the through holes comprise two through holes provided in positions of two vertexes of an almost equilateral triangle around the adhesive housing recess in the beam splitter attachment position of the housing, and a projection for supporting the attachment surface of the beam splitter is provided in a position of the remaining one vertex of the equilateral triangle.
7. A method of assembling the optical pickup device of claim 1 comprises the steps of:
- (A) applying an adhesive to a beam splitter attachment position of a housing;
  - (B) mounting the beam splitter in a temporarily positioned state at the beam splitter attachment position via the adhesive;
  - (C1) adjusting an angle of an attachment surface of the beam splitter in a state where the adhesive is uncured,
- wherein in the step (C1), the angle of the attachment surface of the beam splitter is adjusted so that a beam splitter optical axis matches a design optical axis by inserting projection

sticks in through holes formed in the beam splitter attachment position of the housing and moving each of the projection sticks toward/apart from the attachment surface while detecting light projected to the beam splitter and reflected by a reflection

5 surface of the beam splitter.

8. A method of assembling the optical pickup device of claim 4 comprises the steps of:

(A) applying an adhesive to a beam splitter attachment position of a housing;

10 (B) mounting a beam splitter in a temporary positioned state at the beam splitter attachment position via the adhesive;

(C2) adjusting an angle of an attachment surface of the beam splitter in a state where the adhesive is uncured,

wherein in the step (C2), the angle of the attachment  
15 surface of the beam splitter is adjusted so that a beam splitter optical axis matches a design optical axis by inserting projection sticks in through holes formed in the beam splitter attachment position of the housing and moving each of the projection sticks toward/apart from the attachment surface while allowing light  
20 projected to and reflected from a diffraction mirror to enter the beam splitter, allowing the light reflected by a reflection surface of the beam splitter to be emitted to a reflection mirror, allowing backlight reflected by the reflection mirror to be reflected by the beam splitter, allowing the light reflected by the beam splitter to  
25 be reflected by the diffraction mirror and detecting the light

reflected by the diffraction mirror.

9. An apparatus for assembling the optical pickup device of claim 1 comprises:

a supporting part for supporting a housing;

5 a projector for projecting light to a beam splitter which is mounted in a temporary positioned state at a beam splitter attachment position of the housing via an adhesive;

a reflected light detector for detecting light projected from the projector and reflected by a reflection surface of the beam splitter; and

10 a beam splitter angle adjusting unit for adjusting the angle of an attachment surface of the beam splitter in a state where the adhesive is uncured,

wherein the beam splitter angle adjusting unit has projection sticks inserted in through holes formed in the beam splitter attachment position of the housing and move toward/apart from the attachment surface of the beam splitter , for adjusting the angle of the attachment surface so that a beam splitter optical axis matches a design optical axis.

20 10. An apparatus for assembling the optical pickup device of claim 4 comprises:

a supporting unit for supporting a housing;

a projector for projecting light via a diffraction mirror to a beam splitter mounted in a temporary positioned state at a beam splitter attachment position of the housing via an adhesive;

25

a reflection mirror for reflecting toward the beam splitter light projected from the projector, diffracted by the diffraction mirror, incident on the beam splitter and reflected by a reflection surface of the beam splitter;

5           a backlight detector provided integrally with the projector for detecting backlight transmitted from the reflection mirror via the beam splitter and the diffraction mirror; and

          a beam splitter angle adjusting unit for adjusting the angle of an attachment surface of the beam splitter in a state where the adhesive is  
10   uncured,

          wherein the beam splitter angle adjusting unit has projection sticks inserted in through holes formed in the beam splitter attachment position of the housing and move toward/apart from the attachment surface of the beam splitter , for adjusting the angle of the attachment  
15   surface so that a beam splitter optical axis matches a design optical axis.

11.     The apparatus of claim 9, wherein the projection sticks each has a rounded apex that abuts the attachment surface of the beam splitter.